

Blooms Taxonomy

Competence	Skills Demonstrated
Knowledge	<ul style="list-style-type: none"><li>● observation and recall of information</li><li>● knowledge of dates, events, places</li><li>● knowledge of major ideas</li><li>● mastery of subject matter</li><li>● <i>Question Cues:</i> list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.</li></ul>
Comprehension	<ul style="list-style-type: none"><li>● understanding information</li><li>● grasp meaning</li><li>● translate knowledge</li><li>● Interpret facts, compare, contrast, order, group, infer causes</li><li>● predict consequences</li><li>● <i>Question Cues:</i> summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend</li></ul>
Application	<ul style="list-style-type: none"><li>● use information</li><li>● use methods, concepts, theories in new situations</li><li>● solve problems using required skills or knowledge</li><li>● <i>Questions Cues:</i> apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover</li></ul>
Analysis	<ul style="list-style-type: none"><li>● seeing patterns</li><li>● organization of parts</li><li>● recognition of hidden meanings</li><li>● identification of components</li><li>● <i>Question Cues:</i> analyse, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer</li></ul>
Synthesi	<ul style="list-style-type: none"><li>● use old ideas to create new ones</li><li>● generalize from given fact</li><li>● relate knowledge from several areas</li><li>● predict, draw conclusions</li><li>● <i>Question Cues:</i> combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite</li></ul>
Evaluation	<ul style="list-style-type: none"><li>● compare and discriminate between ideas</li><li>● assess value of theories, presentations</li><li>● make choices based on reasoned argument</li><li>● verify value of evidence</li><li>● recognize subjectivity</li><li>● <i>Question Cues:</i> assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize</li></ul>

Science – Living World –dotterel study  
- What lived underground in the old mining days and why?  
What lives on the Tailings dam and why?

Planet Earth and Beyond – How is Waihi different because of gold mining to another town. Compare & contrast.  
How has the landscape here in Waihi been affected by human actions and what will happen in the future.

Water – how does Newmont Gold Waihi deal with water reuse, recycle and reduce.

Chemistry and Society – What are the properties of gold and silver and how do these help us function in society today. How is gold and silver used?

Rock Studies

Native Trees and Mining history

Yr. 13 Chemistry 3.3A

English – Writing Recounts What I saw the day I went to the mine.  
Arguments – Is mining good or not? (Variety of articles)  
Write captions for a picture.  
Explanations – Explain in your own words the process for getting gold out of rock at the Martha mine.  
Debates, Speeches



**Waihi, Mining and the NZC**  
<http://www.postalmuseum.si.edu/gold/gold2.html>  
**Stories Online about the Gold Rush**  
  
[http://www.teara.govt.nz/en/gold-and-gold-mining/Excellent NZ version about Gold of the past. Be good for notetaking.](http://www.teara.govt.nz/en/gold-and-gold-mining/Excellent%20NZ%20version%20about%20Gold%20of%20the%20past.%20Be%20good%20for%20notetaking.)  
  
[http://www.minerals.co.nz/html/green\\_from\\_gold/gx.html](http://www.minerals.co.nz/html/green_from_gold/gx.html) **Golden Cross a rehabilitated mine.**  
  
[http://www.ohinemuri.org.nz/journal/01/river\\_thames\\_history.htm](http://www.ohinemuri.org.nz/journal/01/river_thames_history.htm)  
The Ohinemuri River – Create a timeline after reading the information relating to happenings in the Coromandel.

**Key Competencies:** -  
  
using language, symbols, and texts  
managing self  
relating to others  
participating and contributing  
thinking

Reading – Reading for meaning  
Journals, articles and information relating to mining in Waihi

Geography Yr. 11 Sustainable mining of the environment.

History

Tourism

**Inquiry Units relating to Gold/Mining/Silver**  
  
How does gold help us to function?  
Where does gold come from?  
How do you get gold?  
How is gold made in the earth?  
What is so special about gold?  
What does gold make?  
How much gold is there in the world?  
Where is most gold stored?  
Which countries have gold mines?  
Does a gold mine help a town?  
How have people mined for gold in the past and how do they do it today?  
What is the difference between underground mining and open cast mining?  
Is underground mining or open cast mining better?  
How do people find gold and where in NZ is it most likely found?  
What happened in the days of the Gold rush here in NZ?

**Technology**  
How technology helps us to mine gold  
Technological Process – getting gold and silver out of rock a piece of jewellery.

## Activity Schedule 2013

Newmont Waihi Gold offers educational groups the opportunity to participate in a range of activities relating to history, geology, geography, environmental practice, resource use, rehabilitation, processes, science, technology and other aspects of the mining industry.

Professional staff are available to discuss curriculum requirements with teachers, and assist with planning a mine visit that will both complement and enhance classroom programmes and enable students gain the maximum benefit from a study of goldmining in Waihi.

The Education Centre is recognised internationally by the mining industry as “a first class facility”.

Guided tours of the mine site complement Education Centre sessions and give students an overall perspective of the size and scope of both the Martha and Favona goldmines.

The following schedule gives a brief synopsis of the activities that are currently available at the Education Centre. Each activity is designed to take 10 – 15 minutes, with three activities usually making up an activity circuit in a session lasting approximately 1.5 hours. Each of the activities can be adapted to suit other age or subject areas as necessary. Feel free to discuss your individual requirements with the Education Officer if there are other topics you would like to focus on that are not covered in this programme.

### Year 1 – 4

- **Describe the Object** – Colour pictures of mining equipment and activities and write words to describe them. Create a learning tag using tooth holders, jewellery and syringes learning about gold uses.

Learning Area	Strand	Level/s	Achievement Objective/s
Social Studies	The Economic World	1	Understand that people have different roles and responsibilities as part of their participation in groups
	Continuity and Change	2	Understand how time and change effect people’s lives

- **Create a learning tag using tooth holders, jewellery and syringes learning about gold uses.**

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Place and Environment	2	Understand how places influence people and people influence places
	Economic World	3	Understand how people make decisions about access to and use of resources
	Place and Environment	4	Understand how exploration and innovation create opportunities and challenges for people, places and environment

- **Model Building** – Construct a cardboard model of historic mining equipment – A Poppet head, underground ore truck or Cornish Pumphouse.

Learning Area	Strand	Level/s	Achievement Objective/s
Social Studies	Continuity and Change	1	Understand how the past is important to people.

### Year 4 – 8

- **Create a slide show about NZ Dotterels, Gold and Silver Uses, Exploration, Sustainability, History of Waihi**
- **New Zealand Dotterel Effects** - Consider a range of given effects and then place them in their appropriate category on the wall display
- **Activity using qr. codes and iPod touches**

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Place and Environment Identity, Culture, Organisation	2	Understand how places influence people and people influence places.
	Place and Environment Identity, Culture, Organisation	3	Understand how people view and use places differently.
	Continuity and Change	4	Understand that events have causes and effects.
Science	Living World	1 & 2	Recognise that all living things have certain requirements so that they can stay alive.
	Living World	3 & 4	Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human induced

- **Create a slide show about NZ Dotterels, Gold and Silver Uses, Exploration, Sustainability, History of Waihi**  
**Activity using qr. codes and iPod touches**

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Identity, Culture, Organisation Place and Environment	2	Understand how places influence people and people influence places.
	Identity, Culture, Organisation Place and Environment	3	Understand how people view and use places differently.
	Continuity and Change	4	Understand that events have causes and effects.
Science	Living World	1 & 2	Recognise that all living things have certain requirements so that they can stay alive.
	Living World	3 & 4	Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human induced.

- **Create a slide show about NZ Dotterels, Gold and Silver Uses, Exploration, Sustainability, history of Waihi**
- **Activity using qr. codes and iPod touches**

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Identity, Culture, Organisation	2	Understand how time and change affect people's lives.
	Place and Environment	3	Understand how people view and use places differently.
	Continuity and Change	4	Understand that events have causes and effects.
	Place and Environment	5	Understand how people's management of resources impacts on environmental & social sustainability

- **We Rely on Gold and Silver** – Consider some of the uses for gold and silver and produce a classroom wall chart displaying these.
- **Activity using qr codes and iPod touches**
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Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Economic World	2	Understand how people make choices to meet their needs and wants.
	Place and Environment	3	Understand how people make decisions about access to and use of resources.
	Continuity and Change	4	Understand how people pass on and sustain culture and heritage for different reasons and this has consequences for people.
Science	Planet Earth and Beyond	2	Describe how natural features are changed and resources affected by natural events and human actions.
Technology	Nature of Technology	2	Understand that Technology both reflects and changes society and the environment.

- **Create a Landscape** – Discuss a range of suggestions for amenities and features to be included in and around the future Martha Lake and use these to create a landscape plan.  
**Water Recycle, Reuse and Reduce**

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Place and Environment	3	Understand how people view and use places differently.
	Place and Environment Continuity and Change	5	Understand how people's management of resources impacts on environmental & social sustainability
Science	Planet Earth and Beyond	2	Describe how natural features are changed and resources affected by natural events and human actions.

- **Rocks Tell Stories** – Consider the geological events that have occurred over millions of years that have caused changes to landforms. Produce a time line showing these events. Also looks at igneous, sedimentary and metamorphic rocks. (Cloze exercise also available as a supplementary activity).

Learning Area	Strand	Level/s	Achievement Objective/s
Social Sciences	Place and Environment Continuity and Change	3	Understand how people make decisions about access to and use of resources.
Science	Planet Earth and Beyond	3 & 4	Develop an understanding that water, air, rocks and soil, and life forms make up our planet and recognise that these are also earth's resources.

- **Model Building** – Construct a cardboard model of historic mining equipment – A Poppet head, underground ore truck or Cornish Pumphouse.

Learning Area	Strand	Level/s	Achievement Objective/s
Social Studies	Continuity and Change	4	Understand how people pass on and sustain culture and heritage for different reasons and this has consequences for people.

## Year 11 - 13

### NCEA Geography, Social Studies and Technology

Level 1 Geography Achievement Standard 1.3 - Demonstrate geographic understanding of the sustainable use of an environment.

Level 1 Geography Achievement Standard 1.6 - Describe aspects of a contemporary New Zealand geographic issue.

Level 1 Senior Social Studies Achievement Standard 1.1 - Describe how cultures change.

Level 1 Senior Social Studies Achievement Standard 1.3 – Describe consequences of cultural change

Level 1 Technology Achievement Standard 1.9 - Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact.

Level 3 Economics – Govt. intervention and externalities

Favona Underground Project  
Martha mine Open Pit Project  
Martha Mine Closure and Post Closure

- **Resource Use / Impacts** – Identify various land uses on an aerial photograph and consider potential impacts of activities that may take place there with google earth.  
Discuss ways to avoid, remedy, and mitigate potential negative effects.

NCEA Level 1	Number	Achievement Standard Title	Guideline Concepts
Geography	AS91009	1.3 Demonstrate geographic understanding of the sustainable use of an environment	Processes, Sustainability
	AS91012	1.6 Describe aspects of a contemporary New Zealand geographic issue	Processes, Sustainability
Social Studies	AS 91039	1.1 Describe how cultures change	Change, Society
Technology	AS91052	1.9 Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact	Innovation, Sustainability

- **Find, Dig it ...** - Look at the “Throughputs” section of a mining systems diagram to gain a clearer understanding of the mining process, using the Martha Mine internet web site and/or brochures.

NCEA Level 1	Number	Achievement Standard Title	Guideline Concepts
Geography	AS91009	1.3 Demonstrate geographic understanding of the sustainable use of an environment	Processes, Change
	AS91012	1.6 Describe aspects of a contemporary New Zealand geographic issue	Processes, Change
Technology	AS91052	1.9 Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact	Design

- **Stakeholder Opinions** – Study Submissions writing down four viewpoints from stakeholders either for or against mining on the Coromandel.

NCEA Level 1	Number	Achievement Standard Title	Guideline Concepts
Geography	AS91009	1.3 Demonstrate geographic understanding of the sustainable use of an environment	Processes, Change
	AS91012	1.6 Describe aspects of a contemporary New Zealand geographic issue	Processes, Change
Social Studies	AS 91041	1.3 Describe consequences of cultural change	Perspectives, Society
Technology	AS91052	1.9 Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact	Design

- **Environmental Monitoring** – Using the Martha Mine web site and qr codes to research various types of environmental monitoring taking place in and around the Martha Mine.  
Study the table “How have Environmental Considerations changed over time” write a sentence that summarises this table:

NCEA Level 1	Number	Achievement Standard Title	Guideline Concepts
Geography	AS91009	1.3 Demonstrate geographic understanding of the sustainable use of an environment	Processes, Change Sustainability
	AS91012	1.6 Describe aspects of a contemporary New Zealand geographic issue	Processes, Change Sustainability
Technology	AS91052	1.9 Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact	Design, Sustainability

- **Making it all Green Again** and/or **Checking it Every Step of the Way** – Google Earth maps locating areas to Remedy, Mitigate and Avoid harmful uses of the environment.

NCEA Level 1	Number	Achievement Standard Title	Guideline Concepts
Geography	AS91009	1.3 Demonstrate geographic understanding of the sustainable use of an environment	Processes, Sustainability
	AS91012	1.6 Describe aspects of a contemporary New Zealand geographic issue	Processes, Sustainability
Technology	AS91052	1.9 Demonstrate understanding of the ways a technological outcome, people, and social and physical environments interact	Design, Sustainability

NCEA Level 3	Number	Achievement Standard Title	Guideline Concepts
Economics	AS91402	Demonstrate understanding of government interventions to correct market failures	Internalising Externalities

NCEA Level 3	Number	Achievement Standard Title	Guideline Concepts
Chemistry	AS91389	Demonstrate understanding of chemical processes in the world around us	Gold mining and cyanide

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